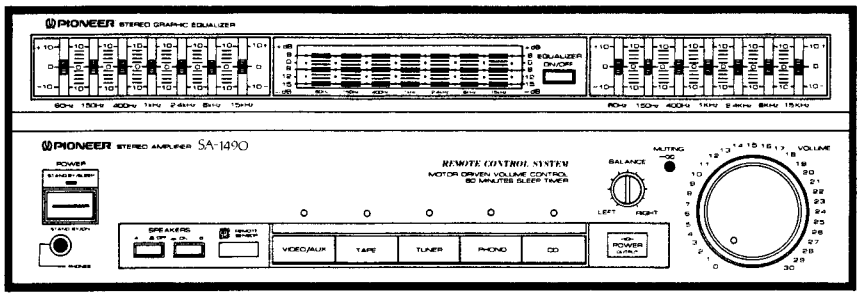
Operating Instructions

STEREO AMPLIFIER

SA-1490

SD, SD/G



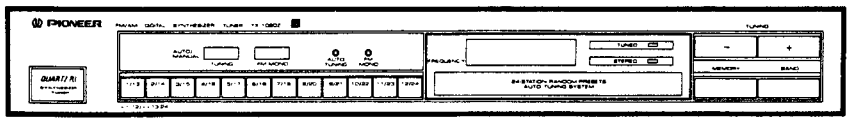
Thank you for buying this Pioneer product.
Please read through these operating instructions so you will know how to operate your model properly. After you have finished reading the instructions, put them away in a safe place for future reference.

In some countries or regions, the shape of the power plug and power outlet may sometimes differ from that shown in the explanatory drawings. However, the method of connecting and operating the unit is the same.

FM/AM DIGITAL SYNTHESIZER TUNER

TX-1090Z

See pp. 13-19.



WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

IMPORTANT NOTICE

[For U.S. and Canadian models]

The serial number for this equipment is located on the rear panel. Please write this serial number on your enclosed warranty card and keep it in a secure area. This is for your security.

[For Canadian model]

CAUTION: TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

ATTENTION: POUR PREVENIR LES CHOCS ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

LINE VOLTAGE SELECTOR SWITCHES

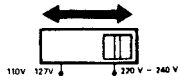
Only multi-voltage models are provided with these switches, U.S.A., Canadian, U.K., Australia and Europe models are not provided with them.

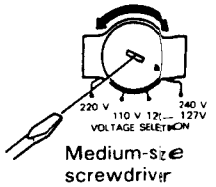
Mains voltages in Saudi Arabia are 127V and 220V only. Never use this model set to 110V in Saudi Arabia.

You will find the line voltage selector switches on the rear panel. Before your model is shipped from the factory, the switches are set to the power requirements of the destination; nevertheless, you should check that they are set properly before plugging the power cord into the wall outlet. If the voltage requirements differ, adjust the selector switches as follows. Before adjusting, disconnect the power cord.

1. Use a medium-size screwdriver.
2. Insert the screwdriver into the groove on the voltage selector, and adjust so that the tip of the arrow points to the voltage value of your area.

Set the voltage selector for the voltage in your area.





Medium-size screwdriver

PIONEER®
The future of sound and vision.

IMPORTANT 1

The lightning flash with arrowhead, within an equilateral triangle, is intended to alert the user of the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION:
TO PREVENT THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

IMPORTANT 2

If the apparatus is fitted with AC mains power outlet(s), see REAR PANEL FACILITIES for convenient connection of additional Hi-Fi component(s). Make all connections to the AC outlet(s) and the signal terminals first. Connect the plug to the wall socket last, make sure that the power switch is off.

FOR USE IN THE UNITED KINGDOM

The wires in this mains lead are coloured in accordance with the following code:

Blue: Neutral
Brown: Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured marking identifying the terminals in your plug proceed as follows:
The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.
The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.
Equipment sold in the U.K. is not supplied with a power plug.

SAFETY INSTRUCTIONS

READ INSTRUCTIONS — All the safety and operating instructions should be read before the appliance is operated.
RETAIN INSTRUCTIONS — The operating instructions should be retained for future reference.
HEED WARNING — All warnings on the appliance and in the operating instructions should be adhered to.
FOLLOW INSTRUCTIONS — All operating and use instructions should be followed.
WATER AND MOISTURE — The appliance should not be used near water — for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.
LOCATION — The appliance should be installed in a stable location.
WALL OR CEILING MOUNTING — The appliance should not be mounted to a wall or ceiling.
VENTILATION — The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
HEAT — The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
POWER SOURCES — The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
POWER-CORD PROTECTION — Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
POLARIZATION — If your purchased product is provided with a polarized power plug, please read the following instructions. This product is equipped with a polarized alternating current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
CLEANING — The appliance should be cleaned only with a polishing cloth or a soft dry cloth. Never clean with furniture wax, benzine, insecticides or other volatile liquids since they may corrode the cabinet.

POWER LINES — An outdoor antenna should be located away from power lines.
NONUSE PERIODS — The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
OBJECT AND LIQUID ENTRY — Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
DAMAGE REQUIRING SERVICE — The appliance should be serviced by a Pioneer authorized service center or qualified service personnel when:

- The power-supply cord or the plug has been damaged; or
- Objects have fallen, or liquid has been spilled into the appliance; or
- The appliance has been exposed to rain; or
- The appliance does not appear to operate normally or exhibits a marked change in performance; or
- The appliance has been dropped; or the enclosure damaged.

SERVICING — The user should not attempt to service the appliance beyond that described in the operating instructions. For all other servicing, contact the nearest Pioneer authorized service center.

OUTDOOR ANTENNA GROUNDING — If an outside antenna is connected to the antenna terminal, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges.
In the U.S.A. section 810 of the National Electrical Code, ANSI/NFPA No. 70-1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Fig. A.

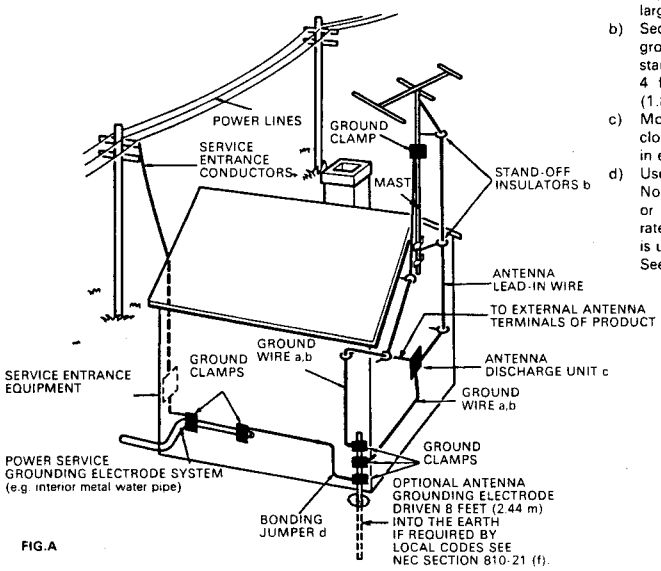

POWER LINES
GROUND CLAMP
SERVICE ENTRANCE CONDUCTORS
MAST
STAND-OFF INSULATORS b
ANTENNA LEAD-IN WIRE
TO EXTERNAL ANTENNA TERMINALS OF PRODUCT
GROUND WIRE a,b
GROUND CLAMPS
ANTENNA DISCHARGE UNIT c
SERVICE ENTRANCE EQUIPMENT
GROUND WIRE a,b
GROUND CLAMPS
POWER SERVICE GROUNDING ELECTRODE SYSTEM (e.g. interior metal water pipe)
OPTIONAL ANTENNA GROUNDING ELECTRODE DRIVEN 8 FEET (2.44 m) INTO THE EARTH IF REQUIRED BY LOCAL CODES SEE NEC SECTION 810-21 (f).
BONDING JUMPER d

FIG.A

a) Use No. 10 AWG (5.3 mm^2) copper, No. 8 AWG (8.4 mm^2) aluminum, No. 17 AWG (1.0 mm^2) copperclad steel, bronze wire, or larger as ground wire.
b) Secure antenna lead-in and ground wires to house with stand-off insulators spaced from 4 feet (1.22 meters) to 6 feet (1.83 meters) apart.
c) Mount antenna discharge unit as closely as possible to where lead-in enters house.
d) Use jumper wire not smaller than No.6 AWG (13.3 mm^2) copper, or the equivalent, when a separate antenna-grounding electrode is used.
See NEC Section 810-21 (j).

CONTENTS

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TX-1090Z 13-19

FEATURES

AMPLIFIER

High power output of 130 W + 130 W

AV Remote Control Unit with Learning Functions

With the attached remote control unit you can operate any Pioneer audio or video component bearing the SR mark. And with additional learning functions the whole AV surround system including TV and VCR of other makers can be controlled. (Some maker's remote control systems, however, are not suitable for programming.) For instructions on operating the remote control unit, read the remote control unit operating instructions.

Includes a 7+7-band graphic equalizer and a 7-band spectrum analyzer.

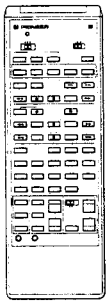
Built-in sleep timer. (controllable only by remote control)

BEFORE USING THIS COMPONENT

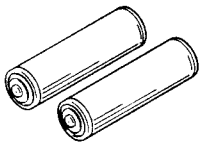
Check for presence of all accessories

Remote control unit 1
(CU-SA004)

- For details, refer to the remote control unit's manual.

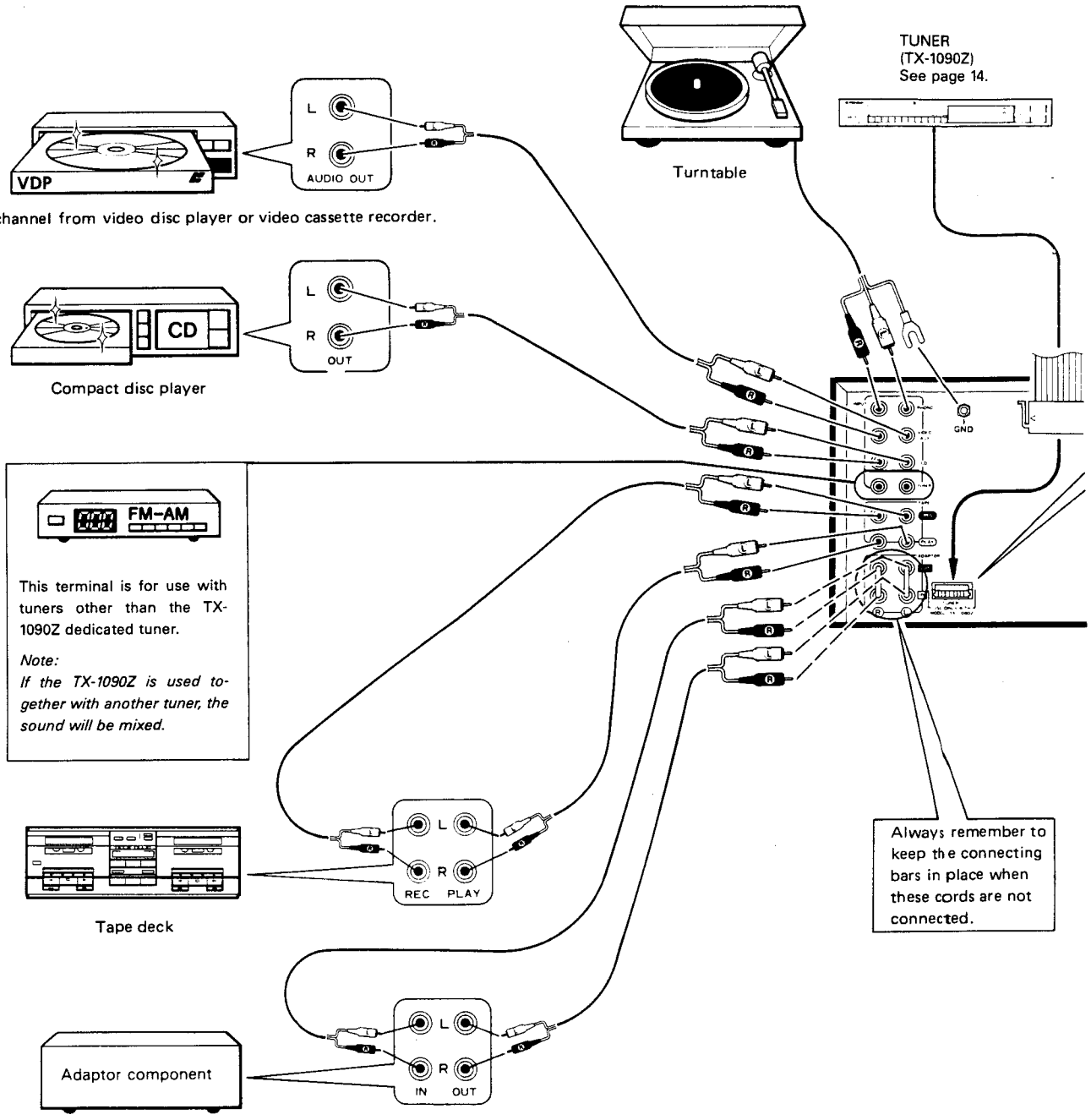


Dry-cell batteries (IEC LR6) 2



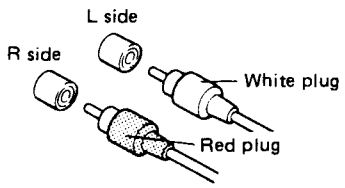
CONNECTIONS

When connecting Pioneer system components, please refer to the operating instructions for the audio rack.



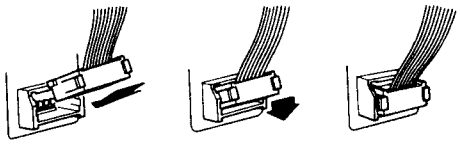
CONNECTING INPUT/OUTPUT CORDS

Connect the white plug to the L (left) side, and the red plug to the R (right) side. Be sure to push the plugs in securely.



REMOTE CONTROL OUT jack

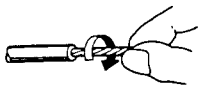
Connect this terminal to other Pioneer components when using remote control of this unit to control the other components. (See Page 6.)



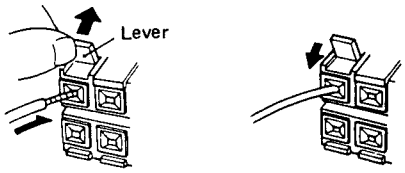
Insert the TX-1090Z furnished connector obliquely from above, and push it down until it locks, thus ensuring that it is connected. When disconnecting the connector, pull it in the opposite direction while pressing the left and right claws.

CONNECTING SPEAKER WIRES

1. Strip off the vinyl covering and twist the strands together.



2. Raise the lever in the direction of the arrow and insert the exposed conductor into the hole.
3. Now return the lever to its original position to secure the cord.

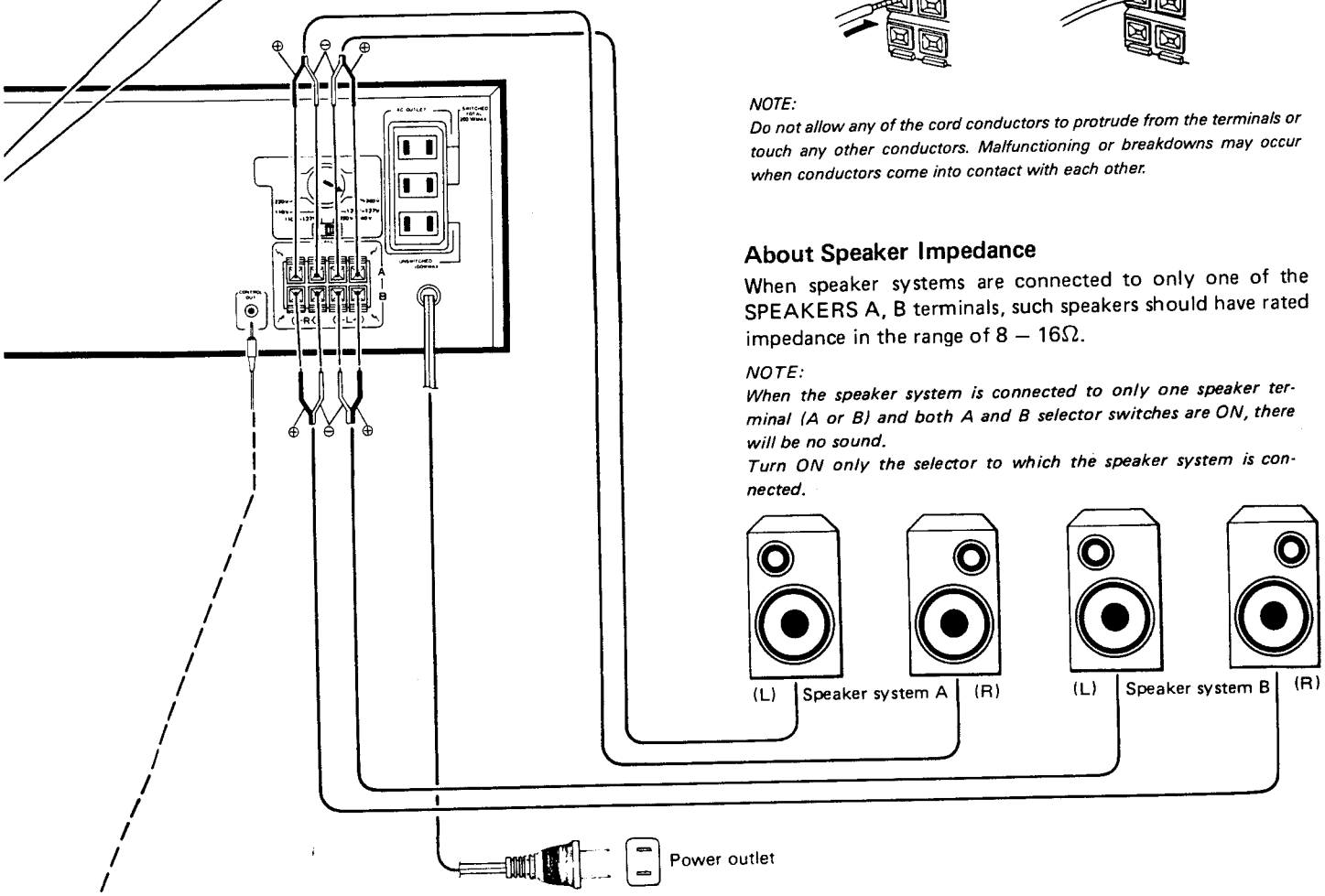


NOTE:
Do not allow any of the cord conductors to protrude from the terminals or touch any other conductors. Malfunctioning or breakdowns may occur when conductors come into contact with each other.

About Speaker Impedance

When speaker systems are connected to only one of the SPEAKERS A, B terminals, such speakers should have rated impedance in the range of 8 – 16Ω.

NOTE:
When the speaker system is connected to only one speaker terminal (A or B) and both A and B selector switches are ON, there will be no sound.
Turn ON only the selector to which the speaker system is connected.

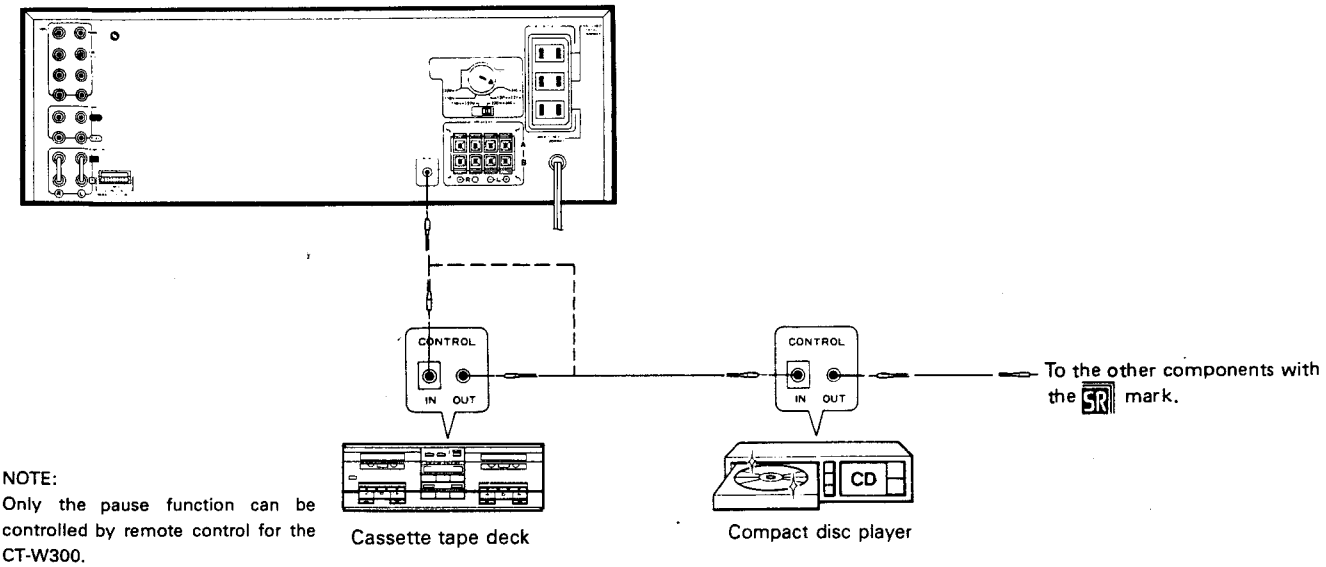


CONNECTING THE CONTROL OUT TERMINAL

Connect this terminal with using Pioneer components with the SR mark.
In this way, the signals received from the remote control unit will be transmitted to the other components with the SR mark.
Connect to the CONTROL IN terminal of the other components you use.

- Use the accessory control cords supplied with the SR marked components.
- Be sure to insert the plugs securely.

NOTE:
You cannot control the unit using the remote control unit by simply making these connections. Be sure to connect the output cords as well.

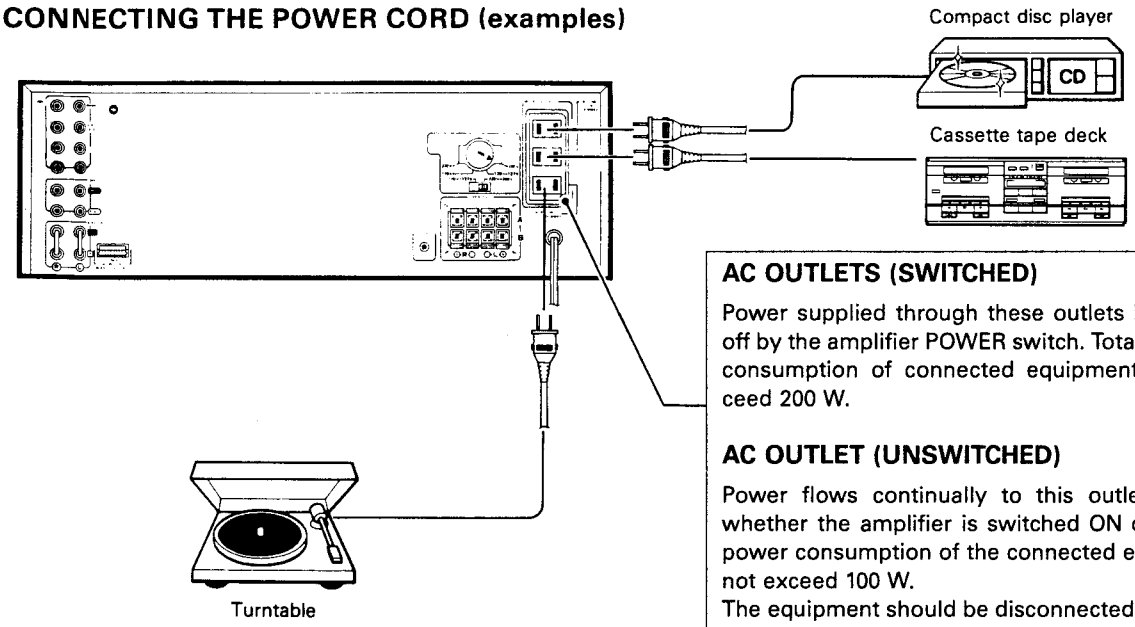


Cassette tape deck

Compact disc player

NOTE:
Only the pause function can be controlled by remote control for the CT-W300.

CONNECTING THE POWER CORD (examples)



Turntable

NOTE:
AC outlets and power plugs are either non-polar or polar.
You cannot insert a polar power plug into a non-polar AC outlet.
Connect only equipment which is provided with a non-polar plug to a non-polar AC outlet.

AC OUTLETS (SWITCHED)

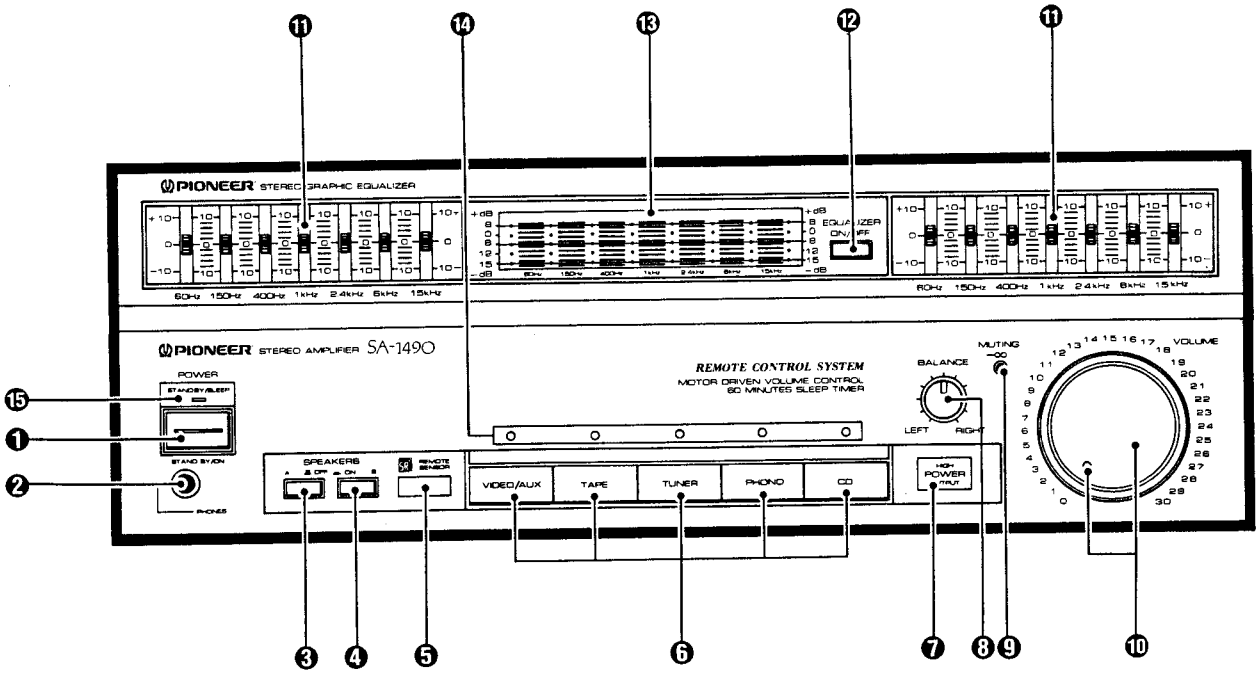
Power supplied through these outlets is turned on and off by the amplifier POWER switch. Total electrical power consumption of connected equipment should not exceed 200 W.

AC OUTLET (UNSWITCHED)

Power flows continually to this outlet, regardless of whether the amplifier is switched ON or OFF. Electrical power consumption of the connected equipment should not exceed 100 W.
The equipment should be disconnected by removing the power plug from the wall socket when not in regular use, e.g., when on vacation.

NOTE:
Do not connect appliances with high power consumption such as heaters, irons, or television sets to the AC OUTLETS in order to avoid overheating or fire risk.
This can cause the amplifier's to malfunction.

NAMES AND USES OF PARTS



❶ POWER (STANDBY/ON) switch

- The accessory remote control unit can also be used to operate STANDBY/ON function of this switch.
- The POWER switch selects the transformer secondary even in STANDBY position. The unit circuitry will work as long as the power cord is connected to a power outlet.
- When not using the unit for a long period, disconnected the power cord.

❷ PHONES jack

When using headphones, insert their plug into this jack.

❸ SPEAKERS A ON/OFF switch

Use this switch to listen to the speaker systems connected to the SPEAKERS A terminals.

[ON] — Depressed position: Sound is heard from the speaker systems.

[OFF] — Released position: No sound is heard from the speaker system. Set to this position when listening with headphones.

❹ SPEAKERS B ON/OFF switch

Use this switch to listen to the speaker systems connected to the SPEAKERS B terminals.

[ON] — Depressed position: Sound is heard from the speaker systems.

[OFF] — Released position: No sound is heard from the speaker system. Set to this position when listening with headphones.

❺ REMOTE SENSOR window

❻ FUNCTION switches

Use to select playback source.

[CD] — Press when listening to compact disc playback with a CD player.

[PHONO] — Press when listening to record playback on a turntable.

[TUNER] — Press when listening to AM or FM broadcasts with a tuner.

[TAPE] — Press when listening to tape playback with a cassette tape deck.

[VIDEO/AUX] — Press when listening to programs from a component connected to the VIDEO/AUX terminals.

Selection can also be performed with the accessory remote control unit.

❼ POWER indicator

Flashes rapidly for about 5 seconds after the power is turned on until sound is produced, and flashes slowly in the mute mode.

❽ BALANCE control

Should normally be left in the center position. Adjust balance if the sound is louder from one of the speakers. If the right side is louder, turn toward the LEFT position, and if the left side is louder, turn toward the RIGHT position.

⑨ MUTING switch

Use to temporarily cut out all audio signals.
When the function is ON, sounds will be cut off. (POWER indicator will flash)
When turned OFF, the sound returns to its previous level. The muting ON/OFF function can also be operated by the accessory remote control unit.

⑩ VOLUME control/indicator

Use to adjust sound volume.
When operated by remote control, this control will rotate with the knob indicator flashing.
Adjustment can also be performed with the accessory remote control unit.

⑪ GRAPHIC EQUALIZER controls/indicators

These controls can be used to emphasize or de-emphasize sounds in the frequency bands 60Hz, 150Hz, 400Hz, 1kHz, 2.4kHz, 6kHz, 15kHz, thus allowing you to control tone quality. The center position of each control is the normal (flat) setting. When raised above the center position, the control frequency band is emphasized; when lowered, the band is de-emphasized.

⑫ EQUALIZER ON/OFF switch

When this switch is pressed, the GRAPHIC EQUALIZER control's indicators turn on, and its functions become operative.
When pressed once again, the indicators go out and its are turned OFF. Use this switch in the following manner:

[ON] : When using the equalizer to add sound compensation while performing program sources, and playing back and/or recording results.

[OFF] : When not using the equalizer, but playing back or recording program sources without compensation.

⑬ SPECTRUM ANALYZER

This display shows the condition of sound signals compensated with the graphic equalizer controls.
(Because the level indicator is connected to the input side, the indication does not change when the VOLUME control is turned.)

⑭ FUNCTION indicators

These indicators light to show the setting of the FUNCTION switches.

⑮ STANDBY/SLEEP indicator

- This indicator flashes when the accessory remote control unit is used to turn the SLEEP key. When the SLEEP key is ON, the indicator will flash. (Initially it will flash slowly, then gradually become faster.)
  Sixty minutes after the sleep timer is turned ON, the power switch will be turned to STANDBY automatically.
- This indicator lights when the accessory remote control unit or this unit is used to turn the POWER key.

This component features a built-in microcomputer which will recall the last-set positions of the following switches for up to about several days after the power cord is disconnected. As a result, when the power is turned ON again, the previously set positions will be recalled automatically:

- FUNCTION switch
- MUTING switch
- EQUALIZER ON/OFF switch

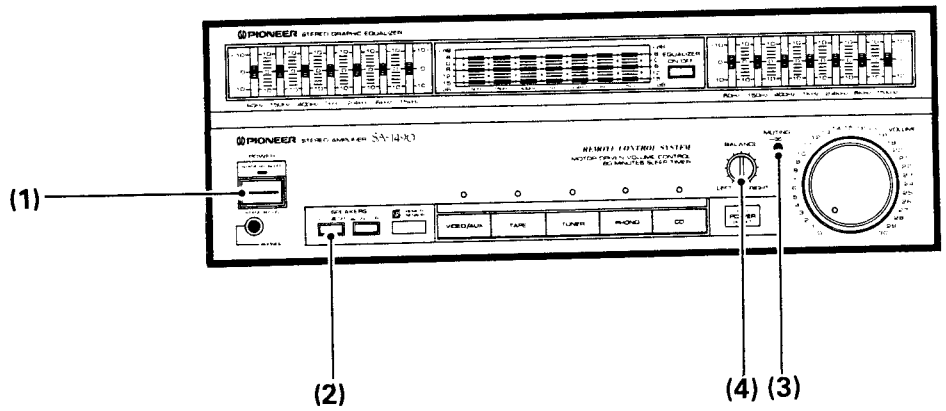
When the unit is not used for more than several days, the memorized setting positions will be erased, and returned to the following settings:

- MUTING switch ..... OFF
- FUNCTION switches ..... TUNER
- EQUALIZER ON/OFF switch ..... OFF

OPERATIONS

BEFORE BEGINNING OPERATIONS

Set the controls and switches as follows:



(1) Set the POWER switch to ON.

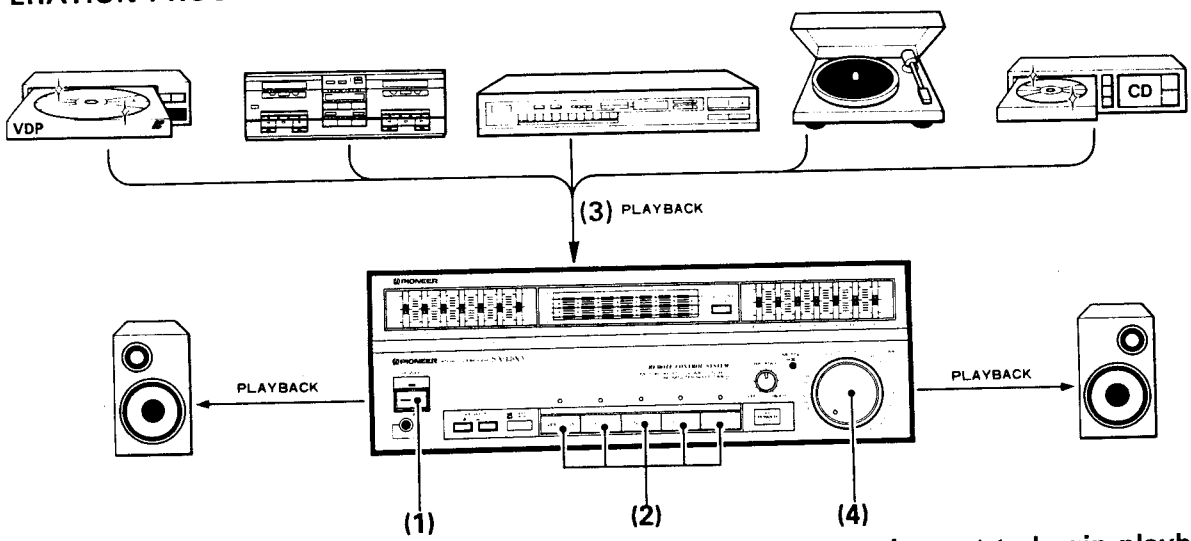
(2) Set the SPEAKERS A switch to ON.

When the speaker system is connected to the speakers A terminals.

(3) Set the MUTING switch to OFF.

(4) Set the BALANCE control to center position.

OPERATION PROCEDURES



(1) Turn on power to this unit and to the other equipment to be used.

(2) Press the FUNCTION switch

Use to select playback source.

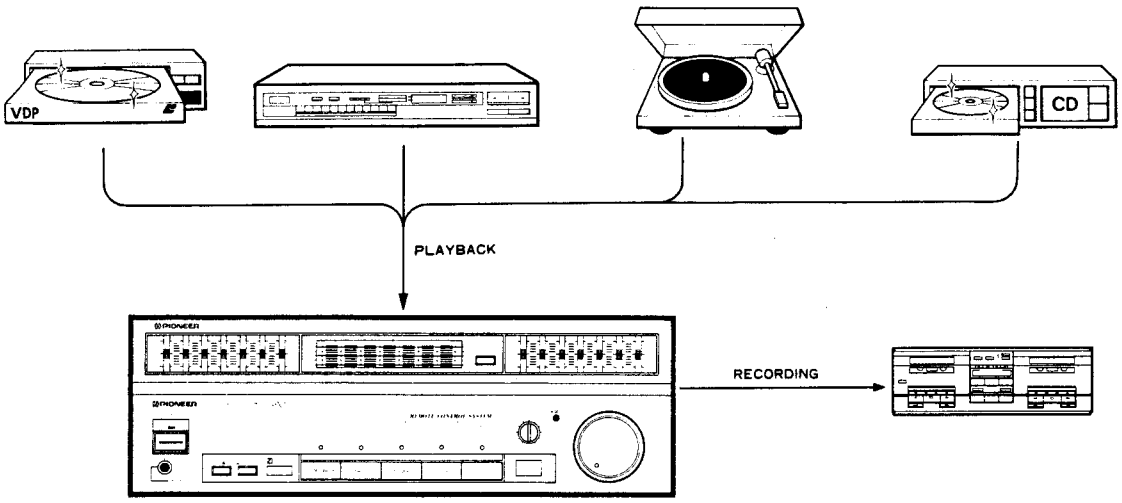
- When listening to a compact disc: Press [CD].
- When listening to a record: Press [PHONO].
- When listening to an AM or FM broadcast: Press [TUNER].
- When listening to a tape: Press [TAPE].
- When listening to programs from equipment connected to the VIDEO/AUX terminals: Press [VIDEO/AUX].

(3) Operate equipment to begin playback.

(4) Adjust playback volume with the VOLUME control and the tone with the GRAPHIC EQUALIZER on this unit.

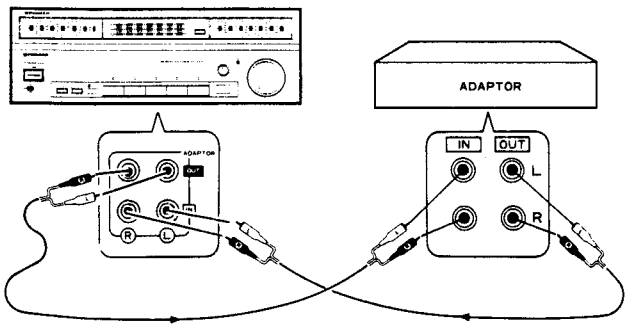
RECORDING TAPES:

- While listening to playback on equipment connected to the rear panel terminals , you can record these same sounds on tape merely by setting your tape deck to the recording mode.
- The sound compensated with the built-in graphic equalizer can be recorded. Set the EQUALIZER ON/OFF switch to the ON position.
- Refer to the operating instructions for your tape deck for proper operating procedures.



TO USE THE COMPONENT CONNECTED TO THE ADAPTOR TERMINALS:

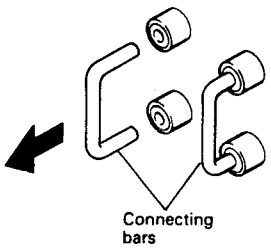
Connecting the dynamic expander to the adapter makes it possible to enjoy the dynamic expander's effects. Also, surround sound can be enjoyed by connecting a surround processing amplifier.



[Connection]

(1) Set the POWER switch to OFF.

(2) Remove the two connecting bars from the adaptor terminals.



(3) Connect the adaptor component in accordance with the connection diagram in the section "Connections."

[Operation]

(1) Playback the source.

(2) Operate the adaptor component.

The sound compensated with the connected adaptor component can be recorded on a tape deck. Signals modified with an adaptor component can be recorded on a tape deck. However, surround sound from a surround processing amp cannot be recorded.

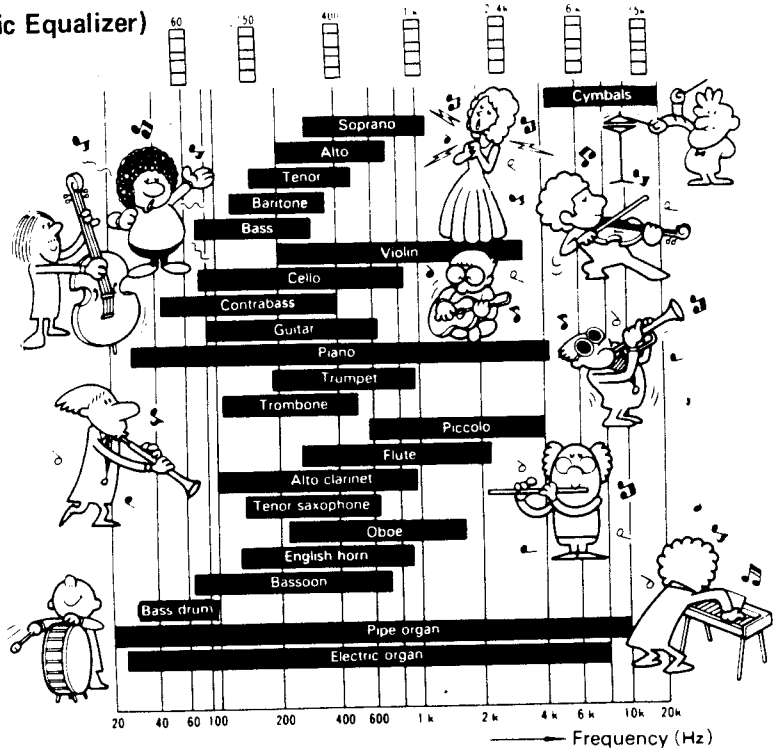
NOTE:

Be sure to perform this operation with the adaptor component power switch in the ON position. Even when not using the adaptor component, its power switch must be left ON. If the adaptor component is switched OFF, no sound will be produced, or the playback sound will be distorted.

For details, refer to the adaptor component's operating instructions.

SOUND COMPENSATION (Using the Graphic Equalizer)

All instruments and vocals have their own frequency band, as shown in the figure.
By moving the controls up or down, the volume of the instruments preferred can be boosted or other instruments can be attenuated.
For instance, it is possible to boost the 60Hz frequency and give the bass drum greater "punch" or boost the 1kHz frequency and position the vocals at the front. When the 6kHz frequency is boosted, the cymbals and "high hat" sound much clearer.
Instruments and vocals have a great many harmonic components along with the fundamental frequency band and so you can have lots of fun operating the 7 controls to achieve the sound of your choice.



TROUBLESHOOTING

Incorrect operations are often mistaken for trouble and malfunctions. If you think that there is something wrong with this component, check the points below. Sometimes the trouble may lie in another component. Investigate the other components and electrical appliances being used.
If the trouble cannot be rectified even after exercising the checks listed below, ask your nearest PIONEER authorized service center or your dealer to carry out repair work.

Amplifier Section

Symptom	Probable Cause	Remedy
No power supplied to unit.	• Power plug is disconnected from outlet. • The component power plug has been plugged into another component power outlet (e.g. timer, etc.), but power to that unit is disconnected.	• Insert plug securely in outlet. • Turn on power to other component.
No sound.	• Connecting cords are disconnected from terminals, or connected incorrectly. • Terminals or connecting cord pin plugs are dirty. • The connecting bar(s) is disconnected from the adaptor terminals. • The MUTING switch is set to ON. • The function switch selected does not match the component being played back. • Operation of other components is mistaken.	• Connect securely. • Clean terminals and plugs. • Replace the connecting bar properly. • Turn switch OFF. • Set switches correctly (PHONO, TUNER, CD, VIDEO/AUX, TAPE). • Consult the operating instructions for the other components.
No sound from one speaker.	• Connecting cords or speaker wires are disconnected to the side. • BALANCE control have been adjusted to one side.	• Connect securely. • Adjust BALANCE control to center position.
Cannot record tapes.	• Connections are mistaken. • Operation of tape deck is mistaken.	• Reconnect properly. • Consult the operating instructions for the tape deck.

SPECIFICATIONS

[SA-1490]

Amplifier Section

Music power
1 kHz, T.H.D. 10%, 8Ω. . . . . .350W + 350W
Peak music power
L + R channels 1400W

Continuous average power output is 130 watts* per channel, min., at 8 ohms from 20 Hertz to 20,000 Hertz with no more than 0.05% total harmonic distortion.**

Input (Sensitivity/Impedance)
PHONO . . . . . 2.5 mV/50 kΩ
CD, VIDEO/AUX, TUNER, TAPE PLAY, ADAPTOR IN
. . . . . 150 mV/50 kΩ
Phono Overload Level (T.H.D. 0.1%, 1 kHz) 100mV
Output (Level/Impedance)
TAPE REC, ADAPTOR OUT . . . . . 150 mV/2.2 kΩ
Frequency Response
PHONO 20 Hz to 20 kHz (RIAA equalization) . . ±1 dB
CD, VIDEO/AUX, TUNER, TAPE PLAY, ADAPTOR IN
10 Hz to 50 kHz . . . . . ±3 dB
Graphic equalizer
60 Hz . . . . . ±10 dB
150 Hz . . . . . ±10 dB
400 Hz . . . . . ±10 dB
1 kHz . . . . . ±10 dB
2.4 kHz . . . . . ±10 dB
6 kHz . . . . . ±10 dB
15 kHz . . . . . ±10 dB
Signal-to-Noise Ratio (IHF, short circuited, A network)
PHONO . . . . . 72 dB
CD, VIDEO/AUX, TUNER, TAPE PLAY, ADAPTOR IN
. . . . . 96 dB

Miscellaneous

Power Requirements . . . ~ AC 110V/120—127V/220V/240V (Switchable) 50/60 Hz
Power Consumption . . . . . 690 W
Dimensions . . . . . 420 (W) x 145 (H) x 320 (D) mm
16-1/2 (W) x 5-3/4 (H) x 12-5/8 (D) in
Weight (without package) . . . . . 9.2 kg (20 lb 5 oz)

Furnished Parts

Remote control unit 1
Batteries IEC LR6 2
Operating Instructions
(Stereo amplifier and tuner). 1
(Remote control unit) 1

NOTE:

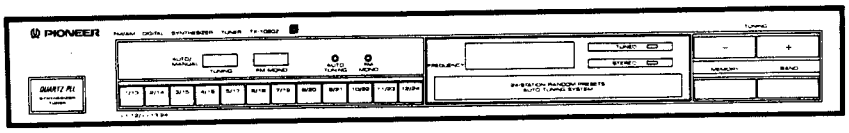
- *Specifications and design subject to possible modification without notice due to improvements.*
- **Measured pursuant to the Federal Trade Commission's Trade Regulation rule on Power Claims for Amplifier.*
- ***Measured by audio spectrum analyzer.*

Operating Instructions

FM/AM DIGITAL SYNTHESIZER TUNER

TX-1090Z

Use only with Model SA-1490 or SA-1290.



WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

IMPORTANT NOTICE
[For U.S. and Canadian models]

The serial number for this equipment is located on the rear panel. Please write this serial number on your enclosed warranty card and keep it in a secure area. This is for your security.

CONTENTS

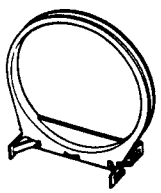
Features 13
Checking Out the Accessories 13
Connections 14
Antenna Connections 15
Names and Uses of Parts 16
Operations 17
Troubleshooting 19
Specifications 19

FEATURES

24-station random FM/AM presetting
A total of up to 24 FM and AM stations can be preset in order to facilitate instant recall of your favorite stations in areas where the frequency bands are crowded with stations.

FM MONO switch
When the FM MONO switch is set to on, those stereo broadcasts that are drowned out by noise can be tuned in with greater clarity. The FM MONO reception mode can be preset for individual broadcasting stations.

CHECKING OUT THE ACCESSORIES



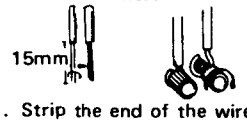
AM loop antenna 1

FM T-type antenna 1

CONNECTIONS

When connecting Pioneer system components, please refer to the operating instructions for the audio rack.

CONNECTING THE FM T-TYPE ANTENNA AND AM LOOP ANTENNA

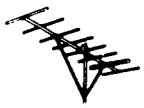


1. Strip the end of the wires.
2. Wrap the end of the wire in a clockwise direction around the base of the terminals and tighten the terminals to secure.

Accessory FM T-type antenna

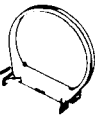
- Use for FM reception until a special-purpose FM antenna is installed.
- Stretch both ends taut and affix to a wall, etc.

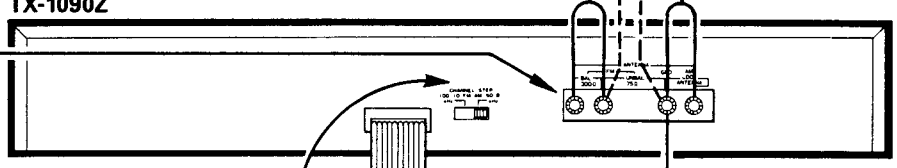
Stretch taut and affix.



Outdoor FM antenna

Accessory AM Loop Antenna





AM/FM CHANNEL STEP switch

Antenna ground

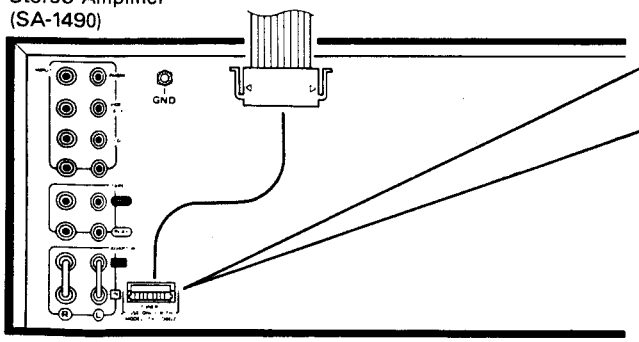
Antenna ground

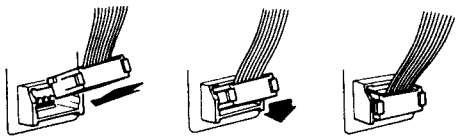
Although grounding is not always necessary for reception, it is recommended for protection against damage from lightning if an outdoor FM antenna is used. Grounding is recommended as well to help reduce noise and hum.

NOTE:

Never make the ground connection to a gas pipe as sparks could cause the gas to ignite.

Stereo Amplifier (SA-1490)





Insert the connector obiquely from above, and push it down until it locks, thus ensuring that it is connected. When disconnecting the connector, pull it in the opposite direction while pressing the left and right claws.

ANTENNA CONNECTIONS

Radio reception is not possible unless the antenna is properly connected.

The strength of broadcast signals varies from one area to another (signal propagation is especially poor in metropolitan areas, where there are many tall buildings, and in mountainous areas). Proper antenna installation is vital to good reception.

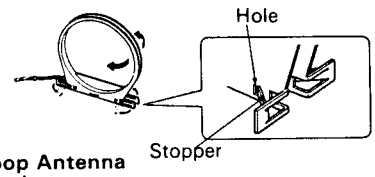
AM ANTENNA

The AM loop antenna supplied with the tuner should be connected to the AM antenna terminals. The antenna should be placed at a distance from the tuner, and should not be allowed to touch metallic objects. Avoid placing it near CD players, personal computers, television sets, and other devices generating radio frequencies.

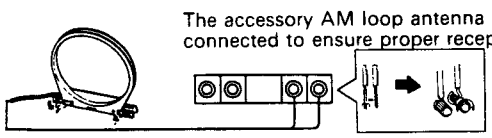
Setting Up the AM Antenna

- Fold out the supports on the bottom of the antenna. Insert the stopper in the hole in the antenna to lock them in place.
- Place the antenna on a level surface and rotate it to locate the orientation that yields the best reception.

AM Loop Antenna Set-up



AM Loop Antenna Connection



External AM antenna

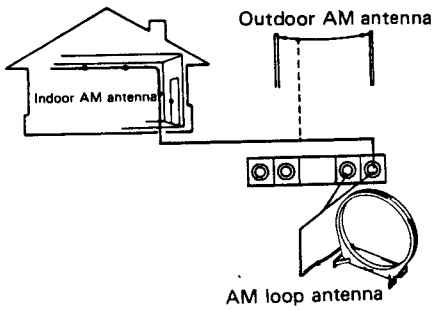
Indoor AM antenna

Provide a vinyl-coated wire (5 to 6 meters long). Secure one end to the AM terminal and the other end to a wall or other high location.

Outdoor AM antenna

If reception is still poor even when a lead antenna has been stretched out indoors, stretch out a vinyl-coated wire and secure it outdoors.

Connecting the external AM antenna



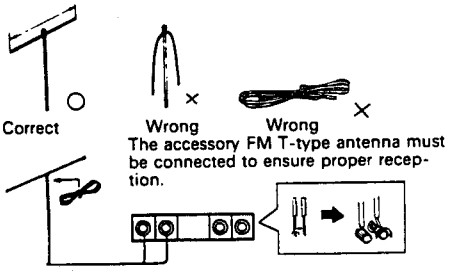
NOTE:
Do not detach the AM loop antenna when using the external AM antenna.

FM ANTENNA

FM T-type Antenna Attachment

Connect the accessory FM T-type antenna to the FM terminals. Stretch the antenna out to its full length, and affix it to a wall, etc.

Stretch out both ends.

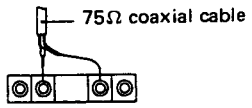


External FM antenna installation

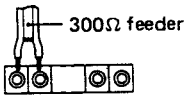
Use an external antenna when the signals from the station are weak and cannot be picked up by the accessory T-type FM antenna, or when the sound heard is accompanied by large amounts of noise. There are two ways of connecting the external FM antenna to the ANTENNA terminals: with 300Ω feeder wire, or with a 75Ω coaxial cable.

It is recommended that you use the 75Ω coaxial cable, so that the effects of extraneous noise are reduced to a minimum.

When the connecting cable is a 75Ω coaxial cable



When the connecting cable is a 300Ω feeder wire



AM/FM CHANNEL STEP SWITCH

The AM/FM channel step switch is located on the rear panel of the digital synthesizer tuner. Before the tuner leaves the factory, this switch is set to the channel allotment plan of the area in which the tuner is sold. When the TUNING switch is given a single push, the frequency display will change in the following units.

Model destination	CHANNEL STEP switch position	Frequency change	
		FM mode	AM mode
North America and Continental South America	100 kHz/10 kHz	100 kHz	10 kHz
Other countries	50 kHz/9 kHz	50 kHz	9 kHz

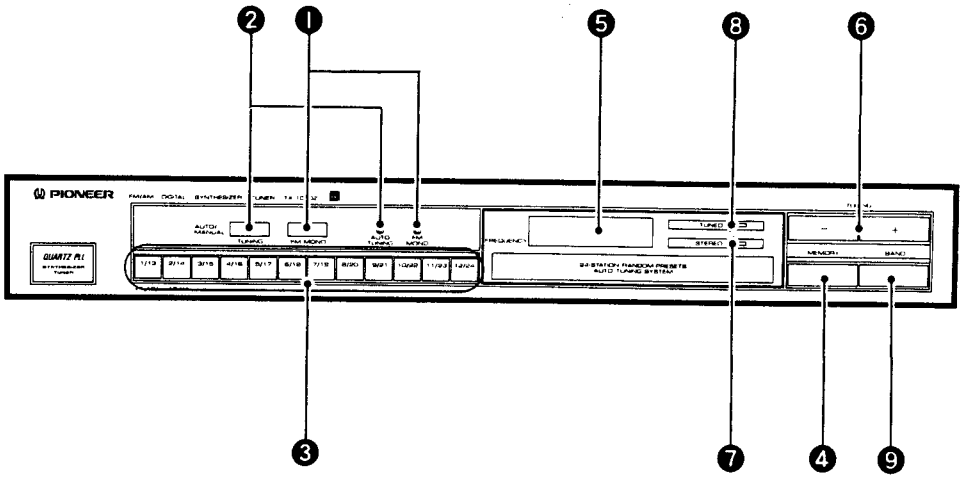
NOTE:

- *If the switch is set to the wrong position, correct tuning will not be possible.*

Consult your dealer if you are not sure about the channel allotment plan in your area.

NAMES AND USES OF PARTS

TUNER



❶ FM MONO switch/indicator

Normally this is set to the off position (the FM MONO indicator goes off). When noise spoils the reception of an FM program, press the switch to the on position (the FM MONO indicator will now light).
The program of an FM stereo broadcast will be heard in mono.
The setting of the FM MONO switch (on or off) is memorized along with the station frequency in the STATION CALL switches.
When using the preset tuning feature, reception will be in the mode selected when the station was memorized.
This switch will not function for AM reception.

❷ AUTO/MANUAL tuning switch/indicator

Use to select either the AUTO mode or MANUAL mode for FM/AM reception. (When the auto tuning mode is selected, the AUTO TUNING indicator will now light.)

❸ STATION CALL switches

These are used to recall preset broadcasting stations and to preset the station.

❹ MEMORY switch

This switch is used to memorize stations. When the switch is pressed, the frequency indicator will flash. To memorize the frequency of any station, press the STATION CALL switch while the frequency display is flashing.

❺ FREQUENCY display

Permits reading of the received frequency at a glance from the displayed figure. The FM band is indicated by MHz, and the AM band by kHz.

❻ TUNING switch

This is used to locate the stations.
Push either side of this switch; the left side "–" to go to a lower, and the right side "+" to go to a higher frequency.

❼ STEREO indicator

This lights when a stereo program has been picked up during an FM broadcast.

❽ TUNED indicator

This lights to indicate when the finest tuning of a station has been achieved.

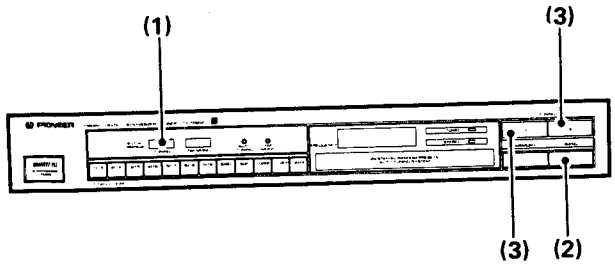
❾ BAND selector switch

This is used to select the band of the desired station. The bands change alternately each time the switch is pressed.

→ FM reception → AM reception →

OPERATIONS

Listening to FM or AM broadcasts.



(1) Select the AUTO or MANUAL tuning.

- When the auto tuning mode is selected, the AUTO TUNING indicator will now light.

(2) Use the BAND selector switch to select either the FM or AM reception band.

- For FM broadcasts, the "FM" and "MHz" indicators will light.
- For AM broadcasts, the "AM" and "kHz" indicators will light.

(3) Press the – (Down) or + (Up) side of the TUNING switch.

Auto tuning:

The tuner will automatically search for a broadcasting station, and stop when one is found. To search for another station, press again.

Manual tuning:

The tuning frequency will change by one step each time the switch is pressed. Press as many times as necessary to tune in the desired station.

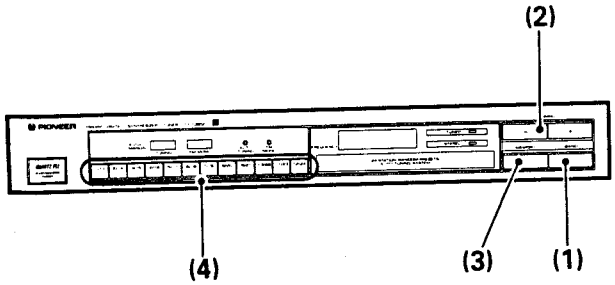
- If the switch is held depressed, the reception frequency will change continuously, and stop when the switch is released.

(4) When you wish to receive a different station within the same band, repeat step 3. To receive a station on a different reception band, repeat steps 2 and 3.

(5) Adjust the volume and tone of the stereo amplifier.

NOTE:
When AUTO TUNING is in use, reception may not be possible over long distances or when signals are weak. At these times MANUAL TUNING is recommended.

PRESETTING FM AND AM STATIONS



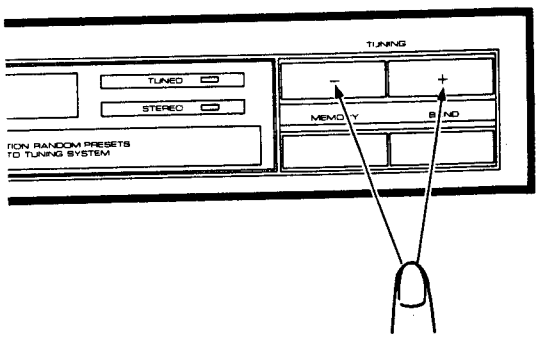
You can preset 12 FM and AM stations in Mode 1, and 12 station in Mode 2, which is a total of 24 stations.

(1) Use the BAND selector switch to select either the FM or AM reception band.

- For FM broadcasts, the "FM" and "MHz" indicators will light.
- For AM broadcasts, the "AM" and "kHz" indicators will light.

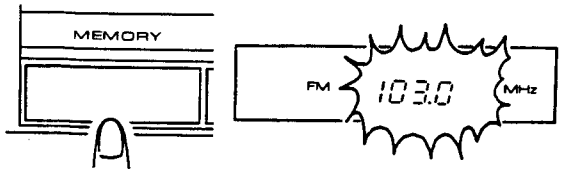
(2) Use the TUNING switch to tune in the desired station.

When memorizing an FM station, either press the FM MONO switch to forcibly memorize the station in the monaural mode, or memorize the station in the auto stereo mode (with FM MONO switch left in the OFF position).



(3) Press the MEMORY switch.

- The display will flash (about 10 seconds).

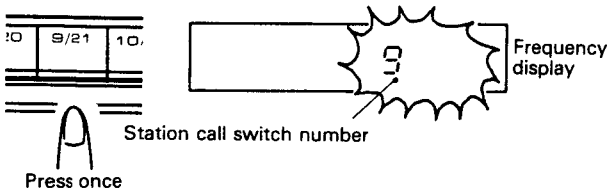


(4) Press the STATION CALL switch

- While the display is flashing, press the switch corresponding to the station which you wish to preset or re-preset.

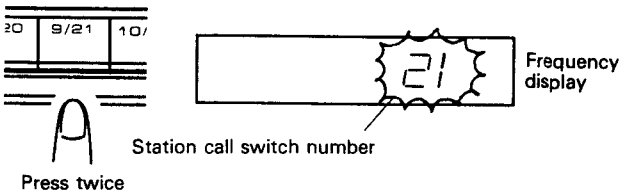
When presetting a station to Mode 1 (e.g. presetting a station to No. 9):

By pressing the station call switch once, the station will be preset to Mode 1.



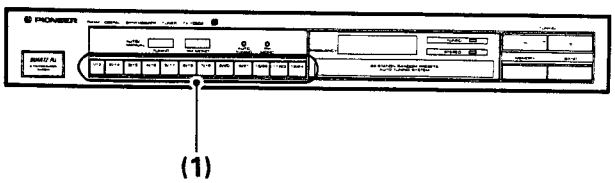
When presetting a station to Mode 2 (e.g. presetting a station to No. 21):

By pressing the station call switch twice, the station will be preset to Mode 2.



- After you press the STATION CALL switch, the display will flash for about 2 seconds, then the station will be memorized. If you press another switch while the display is flashing, the station will not be memorized.

Preset station tuning



(1) Press the STATION CALL switch into which the desired station has been memorized.

- To listen to a Mode 1 broadcast, press the switch once, and to listen to a Mode 2 broadcast, press it twice.
- By pressing the STATION CALL switch, the switch number will be displayed, then the frequency will be displayed.

NOTE:
If, for example, you wish to receive the station memorized in STATION CALL switch "13" when listening to the station memorized in switch "9", press switch "1/13" twice.

In this way, simple and accurate reception of any desired station is possible.

NOTE:

- *The contents of the STATION CALL switch will be preserved for several days, even if the amplifier power cord is unplugged.*
- *If a preset station has been erased, reset it.*

Last station memory

- When the amplifier POWER switch is pressed to turn power on, the last station received before the power was previously turned off will be received again.
- When power is ON, if the BAND selector switch is pressed, the last station received before the BAND selector switch was previously pressed will be received again.

STATION CALL switch "memo"

It is recommended that you make a note of the preset stations.

S.C. switch •	1	2	3	4	5	6	7	8	9	10	11	12
Name of broadcast station												
Frequency												
S.C. switch ••	13	14	15	16	17	18	19	20	21	22	23	24
Name of broadcast station												
Frequency												

TROUBLESHOOTING

Incorrect operations are often mistaken for trouble and malfunctions. If you think that there is something wrong with this component, check the points below. Sometimes the trouble may lie in another component. Investigate the other components and electrical appliances being used.
If the trouble cannot be rectified even after exercising the checks listed below, ask your nearest PIONEER authorized service center or your dealer to carry out repair work.

Symptom	Cause	Remedy
No sound.	• Has the antenna been disconnected or is the connection loose?	• Connect the antenna properly.
	• Has the power cord been unplugged for several days? (Station memory has been lost.)	• Memorize the preset stations once again.
Sound distortion. [On the FM band]	• Are the signals weak and reception poor?	• Substitute an FM outdoor antenna for the FM T-type antenna. • Set the FM MONO switch to ON (reception will be in monaural).
	• Static from other appliances (particularly automobiles) or multipath reflection (radio waves beamed off mountains and tall buildings and not received directly.)	• Try varying the height and direction of the antenna or use an FM outdoor antenna substituting a 75Ω coaxial cable for the standard cable and fixing it as far away as possible from the street.
	• Are radio waves weak, causing antenna input to be insufficient?	• Switch OFF the CD player.
Sound distortion. [On the AM band]	• Is the AM loop antenna oriented poorly or located in an unsatisfactory position? • Static from other electrical appliances (fluorescent lights/motors?)	• Change the direction of the antenna until best reception is obtained as far as possible from tuner. • Switch off other appliances or keep as far away as possible from the tuner when in use.
Stereo broadcasts not received in stereo.	• Are the signals weak, with insufficient input?	• Change to an outdoor FM antenna.
	• Is the FM MONO switch ON?	• Press the FM MONO switch to OFF.

SPECIFICATIONS

[TX-1090Z]

FM Tuner Section

Frequency range . . . . . 87.5 MHz to 108 MHz
Usable Sensitivity (IHF) 12.7dBf (1.2μV/75Ω)
50dB Quieting Sensitivity . . . MONO: 18dBf (2.2μV/75Ω)
STEREO: 38.3dBf (22.6μV/75Ω)
Signal-to-Noise Ratio . . . . . Mono; 77 dB (at 85 dBf)
Stereo; 73 dB (at 85 dBf)
Distortion . . . . . 0.5% (1 kHz)
Alternate Channel Selectivity . . . . . 60 dB (400 kHz)
Stereo Separation . . . . . 40 dB (1 kHz)
Frequency Response . . . . . 30 Hz to 15 kHz (±1 dB)
Image Response Ratio . . . . . 38 dB
IF Response Ratio . . . . . 110 dB
Antenna Input . . . . . 300 Ω balanced
75 Ω unbalanced
Output . . . . . 650mV (100% MOD.)

AM Tuner Section

Frequency range (10kHz/9kHz step) . . . . . 530/531 kHz to 1,700/1,602 kHz
Sensitivity (IHF, Loop antenna) . . . . . 350 μV/m
Selectivity . . . . . 20 dB
Signal-to-Noise Ratio . . . . . 45 dB
IF Response Ratio . . . . . 50 dB
Antenna . . . . . Loop Antenna
Output . . . . . 150 mV (30% MOD.)

Miscellaneous

Dimensions . . . . . 420 (W) x 60 (H) x 215 (D) mm
16-1/2 (W) x 2-3/8 (H) x 8-7/16 (D) in
Weight (without package) . . . . . 2 kg (4 lb 6 oz)

Furnished Parts

FM T-type Antenna 1
AM Loop Antenna 1

NOTE:
- *Specifications and design subject to possible modification without notice due to improvements.*

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